

Monitoring Rangeland Health for an Experiment in Public Land Ownership

Rangeland is land that is dominated by grasses, forbs, and shrubs and managed as a natural ecosystem. Nearly 40 percent of the United States is classified as rangeland—about 800 million acres—much of it in the West. Rangelands not only provide the basis for low-input and renewable forage for grazing, but also serve as watersheds, recreational areas, and natural environments for native plants and wildlife.

A large portion of U.S. rangelands are public lands managed primarily by the Bureau of Land Management, the National Park Service, and the Fish and Wildlife Service within the U.S. Department of the Interior (USDI), and the Forest Service in the U.S. Department of Agriculture (USDA). These agencies have a long history of land stewardship, and they're constantly challenged to find a balance among the diversity of goods and services provided by our nation's rangelands. But conflicts increasingly occur as diverse segments of the public compete for those goods and services.

With those conflicts in mind, the recent creation of the Valles Caldera National Preserve in the Jemez Mountains of northern New Mexico has led to a new approach to managing natural resources on public lands.

Scientists at the ARS Jornada Experimental Range near Las Cruces, New Mexico, are providing data on rangeland health for management of the Valles Caldera, 310 miles to the north. The Jornada is one of more than a dozen ARS rangeland research locations strategically placed to study rangeland in different ecosystems. (See story beginning on page 4.)

The Valles Caldera is an 88,900-acre former ranch—now a federal nature preserve that is the first to be run by a board of individuals rather than by a federal agency. The preserve is operated by a trust—a government corporation administered by a nine-member board. The forest supervisor of the Santa Fe National Forest and the superintendent of Bandelier National Monument sit on the board. Other members include individual citizens representing ranching, wildlife, and conservation interests. It is a grand experiment in the management of public lands—the first such experiment since the USDI and USDA models of public land management.

The Valles Caldera Preserve is known for its huge meadows, abundant wildlife, meandering streams, and remarkable scenery—all within a 12- to 16-mile-wide volcanic caldera, or cauldron.

The federal government bought Valles Caldera in 2000 for \$100 million as part of the National Forest System. The rangeland monitoring arrangement gives Jornada scientists the

chance to apply the rangeland assessment techniques they specialize in. It is one of their largest applications to date, in terms of acreage.

ARS, along with other federal and state agency and institution collaborators, provides the basic biologic and ecological research to this sociopolitical experiment in land management. The monitoring efforts, which also involve training of public volunteers, will allow Jornada researchers to test monitoring guidelines on land that is very different from what they are accustomed to working with. The Valles Caldera is really an oasis in the desert—a mountainous area with grass growing at a high enough elevation to avoid the desert heat.

By law, the Valles Caldera is required to pay for itself through user fees by 2015. Small ranchers in northern New Mexico pay to graze 1 to 25 cattle per ranch in this oasis all summer. The first 2 years, due to drought conditions, fewer than 2,000 cattle grazed there each summer. Citizens throughout New Mexico value the Valles Caldera for its scenery and wilderness. Hikers pay to hike, and in the fall, elk hunters pay to hunt. The purpose of the trust is to manage these lands sustainably for multiple uses, including fishing.

It is a highly visible place to demonstrate the application and benefits of ARS research. Jornada scientists have been going into the Valles Caldera twice a year for the past 2 years to measure vegetation and test soil. Within 10 days of collecting the data, they give it to the Valles Caldera Board of Trustees and post it on their website at usda-ars.nmsu.edu/JER/data_index.htm for public viewing. ARS also helps pay a small local business to do some of the tests and measurements.

The Jornada scientists are using the *Interpreting Indicators of Rangeland Health* guidelines they published in 1999 and revised this year jointly with the U.S. Geological Survey, USDA's Natural Resources Conservation Service, and the Bureau of Land Management. They are also using a version of the *Monitoring Manual for Grassland, Shrubland, and Savanna Ecosystems*, being published this year by the Jornada with contributions from these and other agencies. These scientific methods and guidelines are tools for ranchers and land managers who choose to use them in their programs. They are leading the way in monitoring and protecting rangelands like Valles Caldera in the United States, Mexico, and around the world.

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